

DOCUMENT RESUME

ED 151 684

CG 012 285

AUTHOR Spanier, Graham; And Others
TITLE Family Development and the Family Life Cycle: An Empirical Evaluation.
PUB DATE Oct 77
NOTE 24p.; Paper presented at the Annual Conference of the National Council on Family Relations (San Diego, California, October 12-15, 1977)
EDRS PRICE MF-\$0.83 HC-\$1.67 Plus Postage.
DESCRIPTORS *Birth; Census Figures; Cohort Analysis; *Developmental Stages; *Family Life; *Marriage; *Research Methodology; Research Projects
IDENTIFIERS *Stratification

ABSTRACT

The concept of family life cycle has become increasingly prominent in the study of family development--the formation, maintenance, change, and dissolution of marriage and family relations. An evaluation of this concept is accomplished by examining the relationships between three possible stratification schemes: stage of the family life cycle, marriage cohort, and birth cohort. Cross-classification analysis, analysis of variance, and log-linear analysis for multidimensional contingency tables provide a triangulation of approaches to the question of whether one stratification scheme is superior to another. No method emerged as superior for either prediction or analytical utility. It is concluded that family life cycle as a stratification scheme for studying family development has no more demonstrated value than marriage cohort or age cohort. The article's primary contribution is methodological. The findings suggest that data sets heretofore untapped for family analysis including age or duration of marriage, but not stage of the family life cycle, may now be appropriate for examination of developmental questions by marriage and family researchers.
 (Author/HFD)

 * Reproductions supplied by EDRS are the best that can be made *
 * from the original document. *

ED151684

FAMILY DEVELOPMENT AND THE FAMILY LIFE CYCLE:
AN EMPIRICAL EVALUATION*

Graham B. Spanier, William Sauer, and Robert Larzelere**
The Pennsylvania State University

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

G. B. Spanier

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC) AND
USERS OF THE ERIC SYSTEM."

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRO-
DUCED EXACTLY AS RECEIVED FROM
THE PERSON OR ORGANIZATION ORIGIN-
ATING IT. POINTS OF VIEW OR OPINIONS
STATED DO NOT NECESSARILY REPRESENT
OFFICIAL NATIONAL INSTITUTE OF
EDUCATION POSITION OR POLICY

* Paper presented in the Theory and Methodology workshop of the annual meeting of the National Council on Family Relations, October, 1977. The authors gratefully acknowledge the assistance of Dr. Del Scott and Dr. Carl Boymel for their consultation on the statistical and computer procedures necessary for this research.

** Division of Individual and Family Studies and Department of Sociology,
The Pennsylvania State University, University Park, Pennsylvania 16802.

CG 012285

INTRODUCTION

The concept of "family life cycle" has become central to research in marriage and family relations during the last three decades. This concept has also received attention recently in the fields of developmental psychology and human development. As interest in research over the life span, "family development," and the application of a "developmental" framework has increased, so has the reliance of researchers on various stratification schemes for studying change over the life cycle or differences between individuals or families at different stages of the life cycle. Unlike other disciplines which use variables such as age (birth cohort) for stratification, the most common schemes in the study of marriage and the family deal with marital (or family) careers or stages of the family life cycle, a stratification scheme based primarily on the presence or absence of children, the age of the oldest child, and the presence of the oldest child in the home (Duvall, 1977; Rodgers, 1973). The underlying conceptual rationale for the importance of such a stratification scheme is that the family, like an individual, goes through a developmental process with inherent changes or adaptation required at each of the stages (Duvall, 1977).

Much research uncritically assumes the explanatory value of the family life cycle typology (and implicitly the family development framework) to be sufficiently powerful that, a priori, the research is designed and variables measured in ways that offer no test of the utility of such a typology or method of analysis. Several recent studies of marital adjustment over the family life cycle have illustrated, among other limitations, that stage of the family life cycle accounts for a small fraction of the variance in marital adjustment, an important variable in the field (Rollins and Cannon, 1974; Spanier, Lewis, and Cole, 1975). This finding has led us to attempt a careful study which will empirically, rather than conceptually, verify the relevance of the stratification scheme based on stages of the family life cycle, and assess its utility for

studying "developmental" phenomena, or stage-related differences in important variables.

In order to achieve this goal, we have examined the 1/10,000 subsample of the 1970 United States Census Public Use Data. Using specially written computer programs to create appropriate sub-samples, we present three stratification schemes for comparison: one based on the traditional stages of the family life cycle (using a modification of the Duvall typology); a second using birth cohort (age) as a stratification scheme; and a third using marriage cohort (length of time married) as a stratification scheme. The task was to empirically compare these three schemes to assess their relative utility for prediction of family variables.

It must be emphasized that this study does not present a test of a theory of family development, nor does this study represent an indictment of family development as a conceptual framework. Nevertheless, the findings presented may raise some important questions about (1) the underlying notion that families have predictable patterns (or stages of behavior or experience), (2) whether distinguishable stages for "family development" can be identified and ordered, and (3) the relative value of a theory which posits inherent changes in family life as conceptually superior predictors of social phenomena to age, length of time married, or other "developmental" variables.

 Insert Table 1 about here

PROCEDURES AND OVERVIEW

United States Census data for 1970 were used in the analysis to generate a 1/10,000 subsample of all married persons. Using a modification of Duvall's family life cycle typology (Duvall, 1977), seven stages were created, such that every married person in the United States in 1970 could be categorized by one,

and only one of the seven stages. Similarly, every person was categorized according to their age and length of time married. Thus, each respondent was assigned to a category of stage of the family life cycle, marriage cohort, and birth cohort. The descriptions of these categories are presented in Table 1. It is important to note that no equivalence between like-numbered stages for the three stratification schemes is intended. Seven-stage schemes for each stratification method were chosen only for simplicity, and to allow for roughly similar sample sizes for each stage within stratification schemes.

The analysis proceeds in four steps. First, a descriptive analysis is performed. Distributions are determined for 17 variables of interest available in the census according to stages for each of the three stratification schemes. The purpose of this analysis is to demonstrate the substantial overlap between stages within each stratification scheme.

The second analysis presents two-way cross-tabulations between the three stratification schemes. This analysis demonstrates the high degree of concordance between the three stratification schemes.

The third analysis compares the stratification schemes according to how well their stages show the developmental trend on 17 variables of interest available in the census. This analysis demonstrates that no one stratification scheme is consistently superior for presenting clear demarcations between stages within a given stratification scheme.

The fourth analysis is used to confirm the findings of the previous analysis using a different technique. In addition, this analysis is used to determine whether two stratification schemes together account for more variance in the distribution of dependent variables of interest than does one stratification scheme alone. This analysis confirms the earlier finding that no one stratification scheme emerges as superior for developmental research. It further suggests that while any two stratification schemes together explain more variance

in selected dependent variables than does one, the additional proportion of variance explained is relatively small.

Insert Table 2 and Figure 1 about here

I.

Our initial hypothesis was that if stage of the family life cycle is a meaningful concept, then a relevant variable, when plotted separately for persons in each stage of the life cycle, should produce seven distributions which minimally overlap (e.g., approximately normal curves). We found that on all 17 census variables for each stratification scheme, there was substantial overlap in every case. Indeed, so extensive was the overlap that in every case we found it impossible to plot all seven stages and keep the curves distinguishable.

For illustration, we have plotted in Figure 1 only stages 1, 3, 5, and 7 for each of the three schemes on the variable "family income." Table 2, however, presents the means and 95 percentile ranges for all stages for each of the three stratification schemes on the family income variable. It can be seen that there is substantial overlap between stages in each stratification scheme. Indeed, it must be said that family income, as with all other variables examined (see Table 6), is so variable across the life span as to preclude generalization. Moreover, it could not be demonstrated that any stage of any stratification scheme has a consistent profile of social-demographic characteristics.

The distributions of the stages for the different stratification schemes are quite similar. The only exceptions involve the extreme stages in two of the stratification schemes (stage 1 and stage 7 in the marriage cohort distribution and stage 7 in the famile life cycle distribution). These differences are potentially misleading since the subsamples are so small. These three stage distributions that are noticably different have three of the four smallest sample sizes (out of 21 total stages).

Insert Tables 3, 4, and 5 about here

II.

Our second analysis presents two-way cross-tabulations between the three stratification schemes. Tables 3, 4, and 5 show how much overlap there is between the three different methods of stratification. Most families fell on or near the diagonals of each table, indicating that they were likely to fit in or near the same stage regardless of the method of stratification. For example, Table 3 indicates that 3112 (89%) out of the 3499 families had either the same age cohort stage as family life cycle stage or they were in adjacent stages (e.g., family life cycle stage 1 and age cohort stage 2). Together these tables demonstrate that the information in the family life cycle stratification scheme duplicates the information in any other stratification scheme to a great extent. Further evidence of this is the size of the gamma statistics: .86, .87, and .94 for the three tables, respectively.

Therefore, if one method of stratification is desirable but unavailable in the data source, and if data are available for one of the other two stratification schemes, then the available data can be used to confidently approximate the desired data. This finding suggest that heretofore untapped data sets may be used for analysis of developmental issues in marriage and family research if age or length of time married are available variables.

Insert Table 6 about here

When the stratification schemes do differ as to what stage they place a family in, is one method of stratification generally superior to the others? If one method consistently explains more variance in variables of a family developmental nature, then this would be strong evidence for its superiority over the other two methods. One gross way to examine this issue is to compare omega squared (ω^2) statistics in analyses of variance for each of the three methods in turn with a variable of interest. The (ω^2) statistic given an estimate of the proportion of the variance of the dependent variable accounted for by the independent variable (Hays, 1973). Table 6 shows how the three stratification schemes compare in accounting for the variance in several census variables. In other words, the table compares how well the stratification schemes provide clear demarcation between different stages of the family life cycle.

At first glance it is clear that no single stratification scheme has consistently greater ω^2 statistics than the other methods. While the marriage cohort stratification procedure is best for only two census variables, it is second about as often as it is last in the relative size of the ω^2 statistics.

It should be noted that several of the census variables are directly confounded with one stratification method. Number of years married, age of the husband, and age of the oldest child are used in the procedure for determining the family life cycle stage by the marriage cohort method, the age cohort method, or the family life cycle method, respectively. In addition, the family life cycle sometimes uses the number of children present and the husband's age to determine the appropriate stage.

Some other census variables are less directly related to one of the procedures for determining family stages. For example, because the age of the wife is correlated highly with the age of the husband, the wife's age is best predicted by the age cohort method.

But no one stratification method is clearly superior for those census variables with some developmental relevance and without any apparent bias in favor of one stratification method. The family life cycle method best predicts the wife's socioeconomic level. But the age cohort method best predicts the husband's socioeconomic level and the overall family income.

In sum, this comparison of ω^2 statistics indicates that no one stratification method is clearly superior to the others. If anything, these data would suggest that the age cohort method would generally be favored to the family life cycle method, which, in turn, would be superior to the marriage cohort method for developmental research. But different stratification methods seem to be preferable for different variables of interest.

It should be noted that the comparison of the size of the ω^2 statistics is only a gross comparison, with no way of estimating how reliable such orderings would be across different samples. In other words, no test of statistical significance can be made to compare two or three ω^2 statistics.

 Insert Tables 7, 8, and 9 about here

IV.

The results of our final analysis are presented in Tables 7, 8, and 9, which summarize general log linear analyses of multivariate contingency tables (Goodman, 1971; Bishop, Feinberg, and Holland, 1975). These analyses can be used to compare the stratification schemes in an analogous way to the previous analysis (III). In addition, the log linear analyses can evaluate whether two stratification schemes together explain more variance in the dependent variables of interest than one stratification scheme alone. Log linear analysis is analogous in some respects to analysis of variance in that hypotheses concerning main effects and their interactions can be tested. In other respects, log

linear analysis is analogous to a stepwise regression procedure, in that one interaction can be added at a time to determine if it improves the predictability of the data.

Each section of Tables 7, 8, and 9 presents a summary of a log linear analysis of a $7 \times 7 \times 4$ or a $7 \times 7 \times 3$ contingency table which includes seven stages of two stratification schemes and three or four categories of another variable of interest (for illustrative purposes we have chosen to look at income of the family, husband's socioeconomic level, and wife's socioeconomic level in this analysis).

In all cases, variation in the dependent variable cannot be accounted for adequately by a model which only includes the interaction term involving the two stratification schemes (lines 1, 2, and 3 in each table). If sufficient variance could be accounted for by such a model, the dependent variable would be of little interest from a developmental perspective, since this would indicate that the level of the dependent variable does not differ significantly in different stages according to either stratification scheme. Consequently, all three of the dependent variables used in tables 7, 8, and 9 could be of interest for developmental study. Further evidence for this interpretation is that the interaction term between any stratification scheme and the dependent variable always significantly ($p < .0001$) improves prediction of the dependent variable (1b.1, 1b.3, 2b.1, 2b.3, 3b.1, and 3b.3 in each table).

These χ^2 values can be compared, just as the F statistics were, to evaluate how well the stratification schemes account for the data. Using this comparison, the age cohort stratification scheme accounts best for family income and the husband's socioeconomic level, while the family life cycle scheme accounts best for the wife's socioeconomic level.

The other partition χ^2 values (1b.2, 1b.4, 2b.2, 2b.4, 3b.2, and 3b.4 in each table) apply to a different question: Do two stratification schemes

together account for the variance significantly better than one stratification scheme does alone? This is analogous to asking, in a stepwise regression analysis, whether a second independent variable significantly improves the predictability of the criterion variable over what the first independent variable alone predicts. If two stratification schemes would not account for data significantly better than one of them alone, this would be the strongest evidence for the equivalence of the stratification schemes (short of being exactly identical). For the dependent variables in Tables 7, 8, and 9, a second stratification scheme always adds significantly ($p < .01$) to how the well variance is explained. Therefore, the unique information in any stratification scheme does add predictability to any other stratification scheme, at least for the dependent variables examined.

The χ^2 values can also be used to determine the relative degree of predictability added by including the first and second stratification schemes successively to the model (in interaction with the dependent variable). For example, in the third section of Table 7, it can be seen that the marriage cohort scheme adds only about 1/20 as much predictability as the age cohort method does when the age cohort method is included in the model first (3b.1 and 3b.2). In contrast, the age cohort method adds over 1/2 as much predictability as the marriage cohort method does when the latter is included in the model first (3b.3 and 3b.4).

There are two important statistical qualifications. The first follows from the substantial number of the contingency table cells that have expected values less than five. This decreases the confidence that the likelihood ratio χ^2 value would actually be a good approximation of a χ^2 distribution. However, the small expected values are due to the similarity between any two stratification schemes. Consequently, many cells in tables 3, 4, and 5 include very few families. When these small numbers of cases are further divided among three

or four categories of a dependent variable, this results in many cells with very small expected frequencies.

The second statistical note is that these χ^2 values would be expected to be large even if the effects were very small, because the sample size is so large (3499). For example, a χ^2 value of 300 might be due to the same size of an effect that would produce a χ^2 of 30 with a much smaller sample. Consequently, more stringent significance levels are used than is usually the case.

LIMITATIONS

The primary limitation of this study is that only certain variables available in the United States census of the population are used. It can be argued that the variables available in the census are not sufficiently important for assessing marriage and family structure, function, or interaction. A more appropriate test of the utility of the family life cycle concept and these stratification schemes might involve a data set which includes variables thought to be of greater relevance to marriage and the family (e.g., marital adjustment, family decision making, sexual interaction, family conflict, parent-child relationships).

Other limitations, which have been noted in the previous sections, include the confounding of some of the census variables with one or more of the stratification schemes (analysis III) and the frequently cited problem of some contingency table cells having expected values less than five (analysis IV).

IMPLICATIONS FOR FAMILY DEVELOPMENT RESEARCH AND THEORY

Our analyses have demonstrated that (1) there is a great overlap between stages of the family life cycle on a number of relevant variables; (2) there is substantial correspondence between the three stratification schemes examined, with γ s between the stages of .86, .87, and .94; (3) no one stratification scheme consistently provides the best demarcation between stages for the

variables examined, although the age cohort method does so most often in this data set; (4) the use of combined information from two stratification schemes increased predictability of the dependent variables examined over the use of one stratification scheme alone, but the employment of two methods of stratification simultaneously is likely to be cumbersome; and (5) data sets with age and length of marriage as variables can confidently be subjected to analyses pertaining to family development, since stratification schemes based on age cohort and marriage cohort are as empirically useful as a family life cycle scheme.

We believe that a reexamination of the conception that there is a typical set of developmental stages for families is necessary. Our examination of demographic variables available in the Public Use Data indicates that there is substantial overlap on most variables between stages of the "family life cycle." Furthermore, it does not seem possible to identify a uniform set of characteristics for any stage in a family's movement through the life span. For example, persons in stage 1 of Duvall's (1977) family life cycle typology may be in their teenage years or they may be elderly.

Although marriages of similar duration or families with children of similar ages may share something in common, our data indicate that what they do not share in common is often substantial. We do not suggest that marriage and family professionals abandon their efforts to search for what regularity does exist; such efforts should continue, including the formulation of intervention programs and the conduct of research which takes advantage of this regularity. However, we caution the theorist and researcher who attempts to adopt a family development "framework" which uncritically accepts the assumption of "stages" in a family's movement through the life cycle.

REFERENCES

Bishop, Y.M.M., S. E. Feinberg, and P. W. Holland

- 1975 Discrete Multivariate Analysis: Theory and Practice. Cambridge, Massachusetts: MIT Press.

Duvall, Evelyn M.

- 1977 Marriage and Family Development. 5th edition. Philadelphia: J. B. Lippincott.

Goodman, L. A.

- 1971 "The analysis of multidimensional contingency tables: step-wise procedures and direct estimation methods for building models for multivariate classifications." *Technometrics* 13: 33-61.

Hays, William L.

- 1973 Statistics for the Social Sciences. 2nd Ed. New York: Holt, Rinehart and Winston.

Rodgers, Roy H.

- 1973 Family Interaction and Transaction: The Developmental Approach. Englewood Cliffs, New Jersey: Prentice Hall.

Rollins, Boyd C., and Kenneth Cannon

- 1974 "Marital satisfaction over the family life cycle: a reevaluation." *Journal of Marriage and the Family* 32 (February): 20-28.

Spanier, Graham B., Robert A. Lewis, and Charles L. Cole

- 1975 "Marital adjustment over the family life cycle: the issue of curvilinearity." *Journal of Marriage and the Family* 37 (May): 263-275.

Table 1. Stratification Scheme Definitions

<u>Stage</u>	<u>Family Life Cycle</u>	<u>Age Cohort (Years)</u>	<u>Marriage Cohort (Years)</u>
1	Couples married less than 6 years with no children	14-20	0-5
2	Oldest child less than 6 years of age	21-30	6-10
3	Oldest child between 6 and 12 years of age, inclusive	31-40	11-15
4	Oldest child between 13 and 20 years of age, inclusive	41-50	16-20
5	All others with at least one child present	51-60	21-25
6	All others with no child still present in the home	61-70	26-30
7	No children in the home and husband 65 years of age or older	71 +	31 +

Table 2. Means and 95 Percentile Ranges for Family Income by Stage for Each Stratification Scheme*

Stratification Scheme	<u>Stage for Each Stratification Scheme</u>						
	1	2	3	4	5	6	7
Family Life Cycle							
N	248	482	514	464	843	610	326
Mean	9,390	9,720	11,980	13,890	13,850	11,880	6,130
Range	1,600-20,000	2,200-21,500	3,500-30,300	3,700-42,300	2,200-42,400	1,200-40,600	1,000-22,300
Age Cohort							
N	50	763	735	731	632	375	201
Mean	5,280	9,640	12,240	14,600	13,360	9,670	5,810
Range	11-101	25-200	26-303	30-494	17-406	9-388	11-202
Marriage Cohort							
N	609	441	424	366	448	370	829
Mean	9,220	10,790	12,810	13,570	14,480	14,010	9,770
Range	1,500-19,600	3,100-28,000	2,500-35,000	3,000-41,400	3,800-48,400	2,000-41,400	1,000-33,400

*The 95 percentile range excludes 2 1/2 percent of the cases at each end of the distribution.

Table 3. Association Between Family Life Cycle Stages and Age Cohort Stages

Family Life Cycle Stage	Age Cohort Stage With Number (and percent) of Families							Total in Family Life Cycle Stage
	1	2	3	4	5	6	7	
1	25 (10.0)	199 (79.6)	19 (7.6)	5 (2.0)	2 (0.8)	0 (0.0)	0 (0.0)	250 (100.0)
2	21 (4.3)	362 (74.8)	91 (18.8)	8 (1.7)	2 (0.4)	0 (0.0)	0 (0.0)	484 (100.0)
3	1 (0.2)	147 (28.6)	301 (58.6)	61 (11.9)	3 (0.6)	1 (0.2)	0 (0.0)	514 (100.0)
4	0 (0.0)	8 (1.7)	199 (42.8)	217 (46.7)	40 (8.6)	1 (0.2)	0 (0.0)	465 (100.0)
5	2 (0.2)	36 (4.3)	92 (10.9)	320 (37.9)	284 (33.6)	74 (8.8)	36 (4.3)	844 (100.0)
6	1 (0.2)	16 (2.6)	33 (5.4)	121 (19.8)	302 (49.3)	139 (22.7)	0 (0.0)	612 (100.0)
7	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	162 (49.1)	168 (50.9)	330 (100.0)
Total in Age Stage 50	768	735	732	633	377	204		

Gamma = .86, total sample size = 3499.

Table 4. Association Between Family Life Cycle Stages and Marriage Cohort Stages

Family Life Cycle Stage	Marriage Cohort Stage with Number (and percent) of Families							Total in Family Life Cycle Stage
	1	2	3	4	5	6	7	
1	239 (95.6)	11 (4.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	250 (100.0)
2	320 (66.1)	144 (29.8)	16 (3.3)	4 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	484 (100.0)
3	14 (2.7)	225 (43.8)	240 (46.7)	23 (4.5)	6 (1.2)	3 (0.6)	3 (0.6)	514 (100.0)
4	4 (0.9)	5 (1.1)	86 (18.5)	253 (54.4)	103 (22.2)	12 (2.6)	2 (0.4)	465 (100.0)
5	22 (2.6)	33 (3.9)	56 (6.6)	63 (7.5)	249 (29.5)	209 (24.8)	212 (25.1)	844 (100.0)
6	13 (2.1)	22 (3.6)	26 (4.2)	21 (3.4)	89 (14.5)	133 (21.7)	308 (50.3)	612 (100.0)
7	2 (0.6)	1 (0.3)	0 (0.0)	3 (0.9)	2 (0.6)	13 (3.9)	309 (93.6)	330 (100.0)
Total in Marriage Stage	614	441	424	367	449	370	834	

Gamma = .87, total sample size = 3499

Table 5. Association Between Age Cohort Stages and Marriage Cohort Stages

Age Cohort Stage	Marriage Cohort Stage with Number (and percent) of Families							Total in Age Stage
	1	2	3	4	5	6	7	
1	50 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	50 (100.0)
2	490 (63.8)	246 (32.0)	30 (3.9)	2 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	768 (100.0)
3	56 (7.6)	173 (23.5)	321 (43.7)	167 (22.7)	18 (2.4)	0 (0.0)	0 (0.0)	735 (100.0)
4	12 (1.6)	15 (2.0)	67 (9.2)	168 (23.0)	325 (44.4)	131 (17.9)	14 (1.9)	732 (100.0)
5	4 (0.6)	5 (0.8)	5 (0.8)	22 (3.5)	95 (15.0)	206 (32.5)	296 (46.8)	633 (100.0)
6	1 (0.3)	0 (0.0)	1 (0.3)	4 (1.1)	10 (2.7)	26 (6.9)	335 (88.9)	377 (100.0)
7	1 (0.5)	2 (1.0)	0 (0.0)	4 (2.0)	1 (0.5)	7 (3.4)	189 (92.6)	204 (100.0)
Total in Marriage Stage	614	441	424	367	449	370	834	

Gamma = .94, total sample size = 3499.

Table 6. Omega Square Statistics for Each of Three Family Life Cycle Stratification Schemes on Each of 17 Census Variables

	Census Variable	ω^2		
		Family Life Cycle Stages	Age Cohort Stages	Marriage Cohort Stages
Variables on which family life cycle scheme provided clearest demarcation between stages	Presence of parents or in-laws in household	.005	.005	.003
	Urban/rural residence	.003	.001	.003
	Number of children	.298	.093	.143
	Number of children present**	.555	.275	.342
	Age of youngest child	.572	.130	.148
	Age of oldest child**	.748	.163	.221
	Socio-economic level of wife	.033	.024	.028
Variables on which age cohort scheme provided clearest demarcation between stages	Age difference between husband and wife	.023	.063	.006
	Family Income	.084	.095	.062
	Educational level of husband	.120	.120	.115
	Educational level of wife	.116	.124	.116
	Age at marriage	.046	.158	.010
	Husband's age**	.744	.962	.821
	Wife's age	.740	.882	.829
Variables on which marriage cohort scheme provided clearest demarcation between stages	Socio-economic level of husband	.011	.025	.013
	Number of children who have left home	.353	.337	.403
	Number of years married**	.748	.849	.927

*Critical values for the ω^2 statistics are .002 ($p=.05$), .003 ($p=.01$), and .005 ($p=.001$), based on the associated F statistics.

**Variables confounded with one stratification scheme.

Table 7. Analysis of Association Among Stratification Schemes and Income of the Family by Forward Selection Method of Log Linear Analysis

Source of Variation		df	χ^2
1.	Total mutual dependence among FA,I,F,A	105	818.63***
1a.	Due to 3-factor interaction	65	64.82
1b.	Due to other 2-factor interaction (IF,IA)	40	753.81***
<u>Partitions of (1b) by Forward Selection</u>			
1b.1.	Due to {IF} {FA}	18	575.16***
1b.2.	Due to {IA} {IF},{FA}	22	178.65***
or			
1b.3.	Due to {IA} {FA}	22	633.81***
1b.4.	Due to {IF} {IA},{FA}	18	120.00***
2.	Total mutual dependence among FM,I,F,M	117	765.20***
2a.	Due to 3-factor interaction	81	100.27
2b.	Due to other 2-factor interactions (IF,IM)	36	664.93***
<u>Partitions of (2b) by Forward Selection</u>			
2b.1.	Due to {IF} {FM}	18	575.15***
2b.2.	Due to {IM} {IF},{FM}	18	89.78***
or			
2b.3.	Due to {IM} {FM}	18	417.72***
2b.4.	Due to {IF} {IM},{FM}	18	247.21***
3.	Total mutual dependence among AM,I,A,M	105	766.18***
3a.	Due to 3-factor interaction	69	96.06
3b.	Due to other 2-factor interactions (IA,IM)	36	670.12***
<u>Partitions of (3b) by Forward Selection</u>			
3b.1.	Due to {IA} {AM}	18	633.81***
3b.2.	Due to {IM} {IA},{AM}	18	36.31*
or			
3b.3.	Due to {IM} {AM}	18	417.73***
3b.4.	Due to {IA} {IM},{AM}	18	252.39***

A = Age Cohort Stage, F = Family Life Cycle Stage, M = Marriage Cohort Stage, I = Income of the Family.

* $p < .01$

** $p < .001$

*** $p < .0001$

Table 8. Analysis of Association Among Stratification Schemes and Husband's Socio-economic Level by Forward Selection Method of Log Linear Analysis

Source of Variation		df	χ^2
1.	Total mutual dependence among FA,H,F,A	68	224.68***
1a.	Due to 3-factor interaction	44	83.04**
1b.	Due to other 2-factor interactions (HF,HA)	24	141.64**
<u>Partitions of (1b) by Forward Selection</u>			
1b.1.	Due to {HF} {FA}	12	50.30***
1b.2.	Due to {HA} {HF},{FA}	12	91.34***
	or		
1b.3.	Due to {HA} {FA}	12	98.50***
1b.4.	Due to {HF} {HA},{FA}	12	43.14***
2.	Total mutual dependence among FM,H,F,M	78	175.21***
2a.	Due to 3-factor interaction	54	81.77*
2b.	Due to other 2-factor interactions (HF,FM)	24	93.44***
<u>Partitions of (2b) by Forward Selection</u>			
2b.1.	Due to {HF} {FM}	12	50.92***
2b.2.	Due to {HM} {HF},{FM}	12	43.15***
	or		
2b.3.	Due to {HM} {FM}	12	59.92***
2b.4.	Due to {HF} {HM},{FM}	12	33.52**
3.	Total mutual dependence among AM,H,A,M	68	201.32***
3a.	Due to 3-factor interaction	44	77.00*
3b.	Due to other 2-factor interactions (HA,FM)	24	124.32***
<u>Partitions of (3b) by Forward Selection</u>			
3b.1.	Due to {HA} {AM}	12	98.48***
3b.2.	Due to {HM} {HA},{AM}	12	25.84*
	or		
3b.3.	Due to {HM} {AM}	12	59.91***
3b.4.	Due to {HA} {HM},{AM}	12	64.41***

A = Age Cohort Stage, F = Family Life Cycle Stage, M = Marriage Cohort Stage, H = Husband's Socio-economic Level.

* $p < .01$
 ** $p < .001$
 *** $p < .0001$

Table 9. Analysis of Association Among Stratification Schemes and Wife's Socio-economic Level by Forward Selection Method of Log Linear Analysis

Source of Variation		df	χ^2
1.	Total mutual dependence among FA,W,F,A	105	743.04***
1a.	Due to 3-factor interaction	69	85.06
1b.	Due to other 2-factor interactions (WF,WA)	36	657.98***
<u>Partition of (1b) by Forward Selection</u>			
1b.1.	Due to {WF} {FA}	18	527.34***
1b.2.	Due to {WA} {WF},{FA}	18	130.64***
or			
1b.3.	Due to {WA} {FA}	18	518.02***
1b.4.	Due to {WF} {WA},{FA}	18	139.96***
2.	Total mutual dependence among FM,W,F,M	117	746.31***
2a.	Due to 3-factor interaction	81	120.21*
2b.	Due to other 2-factor interactions (WF,WM)	36	626.10***
<u>Partition of (2b) by Forward Selection</u>			
2b.1.	Due to {WF} {FM}	18	527.34***
2b.2.	Due to {WM} {WF},{FM}	18	98.76***
or			
2b.3.	Due to {WM} {FM}	18	507.71***
2b.4.	Due to {WF} {WM},{FM}	18	118.39***
3.	Total mutual dependence among AM,W,A,M	105	732.35***
3a.	Due to 3-factor interaction	69	104.87*
3b.	Due to other 2-factor interactions (WA,WM)	36	627.48***
<u>Partition of (3b) by Forward Selection</u>			
3b.1.	Due to {WA} {AM}	18	518.02***
3b.2.	Due to {WM} {WA},{AM}	18	109.46***
or			
3b.3.	Due to {WM} {AM}	18	507.71***
3b.4.	Due to {WA} {WM},{AM}	18	119.77***

A = Age Cohort Stage, F = Family Life Cycle Stage, M = Marriage Cohort Stage,
W = Wife's Socio-economic Level.

* $p < .01$
 ** $p < .001$
 *** $p < .0001$